Date: Fri, 26 Aug 94 04:30:16 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #282
To: Ham-Ant

Ham-Ant Digest Fri, 26 Aug 94 Volume 94 : Issue 282

Today's Topics:

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

Date: Thu, 25 Aug 1994 18:03:24 GMT
From: world!hrick@uunet.uu.net
Subject: IS there a faq on Walkman antennas?
To: ham-ant@ucsd.edu

In article <Cv2wzr.D3B@world.std.com>,
John Stewart Pinnow <jspinnow@world.std.com> wrote:
>
>I am looking for tricks on bot expanding the coverage of MW and FM
> transmissions.
>

I don't think I've ever seen a FAQ in this newsgroup.

FOr radios with whip antennas, you can _sometimes_ improve reception
by taking a 10-foot long piece of insulated wire, wrap about 6 inches
of it around the whip, and run the rest of it up the wall and along
the ceiling.

I think Walkman-type radios are a hopeless case, but maybe somebody has
come up with a way to help their reception.

Date: 25 Aug 1994 13:53:25 -0500
From: ihnp4.ucsd.edu!agate!darkstar.UCSC.EDU!news.hal.COM!olivea!
charnel.ecst.csuchico.edu!yeshua.marcam.com!zip.eecs.umich.edu!
newsxfer.itd.umich.edu!gatech!swrinde!cs.utexas.edu!not-for-mail@@
Subject: Large horizontal loop vs. dipole
To: ham-ant@ucsd.edu

I remember during Jim Kearman's talk to the Boston Area DXer's club he
commented that putting an inductor across the input to his R8 made his
antenna quieter. We also talked a bit about the folklore of loops being
quieter than dipoles. Jim didn't have any explanations, just solid
observations and experience.

The BAD GUYs have also kicked-around the folklore that vertically-polarized
antennas are noisier than horizontally-polarized antennas.

Thanks to Forrest Gehrke, I have a hypothesis that may explain some of the
folklore.

On rec.radio.amateur.antenna, forrest.gehrke@cencore.com (Forrest Gehrke) wrote:
>ug20.174217.11590#ke4zv.atl.ga.us>, gary@ke4zv.atl.ga.us
>RE>>(Gary Coffman) wrote:
>RE>>> Horizontal loops are great. They have low noise pickup, and very good

>RE>>I've always wondered about this often-repeated characteristics of loop
>RE>>antennas. Can anyone explain *why* loops are quieter?

>RE>Just a thought, maybe they are quieter because the usual source of the
>noise
>RE>is empressed on the loop as a common mode voltage and therefore tends to
>RE>cancel at the antenna terminals.

>RE>Whereas, dipoles and other non closed loop antennas would pick up the noise
>RE>across the aperture as a single current.

>That might be a contributor but I believe the major reason to be
>that a loop is closed while dipoles are subject to corona noise
>off their ends. Listen to any antenna using dipoles whether single
>or in a Yagi during a rainstorm or a snowstorm, and I am not
>talking about QRN. The noise given off by corona is constant and
>present to some extent except in the most quiet weather conditions.

Corona noise is RFI resulting from the discharge of static electricity off

the antenna. The antenna picks up a static charge from the wind. The static bleeds off from points of high electric field gradient, such as any sharp point like the end of the antenna wire.

For a coax-feed dipole antenna, one-half the antenna is DC-grounded via the connection to the (presumably grounded) coax shield. It should bleed off any static charge through the DC ground connection. The other half however, is grounded only through the receiver's front-end, if at all. So it will charge up to a high enough potential to result in some corona discharge, and thus some RFI.

Hypothesis: careful dressing of wire splices and using large-diameter loops or spherical balls to terminate the ends of a dipole should result less noise.

Now if the antenna is a loop antenna, there are no ends, and so no points of high static E-field, so the corona discharge current is small. Also. most loop antennas are coax-fed, and so every piece of wire has a DC path to ground through the (presumably grounded) coax shield.

So, loops are quieter than dipoles.

However, if one connects an inductor (or a high-value bleeder resistor) across the coax feedline to the dipole, then there is a DC path to ground for both halves of the dipole, and there is therefor no build-up of static charge, and thus no corona discharge, hence no RFI noise.

Hypothesis: a bleeder inductor or resistor across the two arms of a dipole should make a dipole as quiet as a loop antenna.

Most people are lucky to get one support a 1/4 wavelength in the air; few get two. So perhaps most comparisons are between low horizontal dipoles (which need two supports) and 1/4 wave (or less) verticals.

Consider a low (less than 1/4 wave) horizontal dipole versus a 1/4 wave vertical monopole. The horizontal dipole is horizontally-polarized. The vertical monopole is vertically-polarized. However, there is another difference. The atmosphere has a significant vertical static E-field gradient (I'm citing half-remembered folklore here, but I have seen lightning strikes :-). A vertical monopole is a conductor across that vertical static E-field; thus the atmospheric E-field is added to any field generated by the charge accumulation from the wind. The coax feed for a horizontal dipole also forms a conductor across the vertical static E-field, but since the horizontal antenna is lower, the potential

difference is smaller. Thus the corona discharge current should be higher
for the higher antenna, which is the vertical.

So, 1/4 wave verticals are noisier than low horizontal dipoles due to
corona discharge.

Hypothesis: high (greater than 1/4 wave) horizontal dipoles with coax feed
should be noisier than 1/4 wave verticals.

Any comments?

Steve Byan   internet: steve@hi.com
Hitachi Computer Products (America), Inc.
1601 Trapelo Road   phone: (617) 890-0444
Waltham, MA 02154   FAX: (617) 890-4998

Date: 24 Aug 1994 19:19:35 -0400
From: mozz.unh.edu!toto.plymouth.edu!oz.plymouth.edu!not-for-mail@uunet.uu.net
Subject: Lightning Bolt Antennas
To: ham-ant@ucsd.edu

Does anyone have experience with the Lightning Bolt quad antennas? I'm looking at
either the 10-15-20 or 10-12-15-17-20 model.

73...
Peter, AE1T

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Peter Drexel |
Department of Computer Science | ae1t @ oz.plymouth.edu (Internet)
Plymouth State College | ae1t @ ae1t.nh.usa.noam (Packet)
Plymouth, NH 03264 |

Date: 25 Aug 1994 18:02:42 GMT
From: ihnp4.ucsd.edu!agate!darkstar.UCSC.EDU!news.hal.COM!olivea!
charnel.ecst.csuchico.edu!psgrain!news.tek.com!tekgp4.cse.tek.com!
royle@network.ucsd.edu
Subject: Should feedline length change the VSWR?
To: ham-ant@ucsd.edu

jfw@ksr.com (John F. Woods):

:. . .

:Two extremely cheap RF choke schemes: (1) Form some of the feedline into
:a coil (just like your standard cylindrical coil) (use the oatmeal container
:as a coil form). The outside of the coax becomes an inductor, hopefully a
:high enough inductance to block RF. (2) Fill a largish tube with steel wool,
:pass the coax through it (I think this is in the ARRL Hints and Kinks book).
:Steel wool is a reasonably poor conductor of RF, and acts as a big resistor
:coupled to the outside of the coax.

:. . .

The steel wool balun doesn't work. After seeing the "Hints & Kinks" article
in QST about the steel wool balun, Walt Maxwell built one and measured it
with an impedance meter. He wasn't able to see any effect caused by the
steel wool -- the impedance of the outside of the line was the same as a
plain piece of coax of the same length. His letter describing the experiment
was published a few months later in "Technical Correspondence".

Roy Lewallen, W7EL
roy.lewallen@tek.com

End of Ham-Ant Digest V94 #282
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